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ABSTRACT

A general overview of problems, current activities, and future action related to the human environment is delineated in this United Nations pamphlet. Reviewed first is the challenge facing the United Nations to promote common interest in protecting the earth's life-sustaining essentials. Following this, world scientific and technological strides and their mass consequences are outlined, cited as the evidence or reasons for numerous plans, proposals, and conferences conducted by the United Nations, including the United Nations Conference on the Human Environment. The efforts described represent a sampling of the varied ideas put forth within and outside the United Nations family of organizations. The scope of work underway in the United Nations system is indicated by a summary of activities now being carried out by several of the specialised agencies and bodies of the United Nations. (BL)

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The human environment . . .

NEW CHALLENGE for the UNITED NATIONS

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UNITED NATIONS

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"Perhaps it is the collective menaces,
arising from the world's scientific and technological strides
and from their mass consequences, which will bind together nations,
enhance peaceful co-operation and surmount,
in the face of physical danger,
the political obstacles to mankind's unity."

—U Thant.

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New Challenge for the United Nations

Looking back from his new vantage-point in outer space, man sees his earth as a tiny ball floating in the void. The oceans, the continents, the clouds that mark its precious atmosphere are visible; national boundaries cannot be seen.

"Like it or not, we are all travelling together on a common planet," Secretary-General U Thant has said. "We have no rational alternative but to work together to make it an environment in which we and our children can live full and peaceful lives." Today more than ever before, Members of the United Nations are aware of the need to act together to protect the earth's life-sustaining essentials. The common interest of mankind in the protection of the human environment has been recognized with a growing sense of urgency.

"It has become clear that we all live in one biosphere within which space and resources, though vast, are limited", the Secretary-General declared in a report on problems of the environment, prepared for the Economic and Social Council and the General Assembly. If present trends are allowed to continue, "the future of life on earth could be endangered".

This was not the first time that such warnings had been sounded in the United Nations. More than 20 years ago, the potential perils to the human race were stressed at the first world scientific conference convened by the United Nations—the Scientific Conference on the Conservation and Utilization of Resources, held at Lake Success in 1949. Man's survival in the universe was a problem before which all others faded, one speaker observed: "Nature's plentifulness is a heritage not to be squandered with impunity; it must be conserved for future generations or its bankruptcy will extinguish us all." The main emphasis in the 1949 conferences was on finding means to avoid waste and depletion of natural resources, apply modern techniques to obtain maximum use of resources, and discover or create new resources. The need to conserve soil, forests, wildlife and fisheries was discussed. But questions of pollution, residual effects of chemicals on plant and animal life, and the ecological balance between man and other living things were not yet matters of pressing international concern.

Two decades later, rivers were burning, fish rotted on the shores, trees withered, cities choked on polluted and foul-smelling air. Developed countries in particular had become aware of the costs of "progress" in carbon monoxide and sulphur dioxide, soot and fly ash, acids and detergents, strontium-90 and sonic boom. The world began to worry about the adverse effects of man upon his environment, and the General Assembly decided to convene a United Nations Conference on the Human Environment, to be held in Stockholm, June 5-16, 1972. The Conference is expected to bring together about 1,200 high-level Government representatives and their advisers from 130 countries. It will seek action at all levels—from international to local—to protect and improve the human environment.

The Evidence

Why did the Assembly decide that a world conference was needed? The reasons are suggested by some of the facts in the Secretary-General's report on the environment. A sampling of the evidence follows:

—Reliance of modern technology on combustion of fossil fuels has brought a 10 per cent increase in atmospheric carbon dioxide over the past century. With increased rates of combustion to meet growing energy demands, this could rise to 25 per cent by the year 2000. A continued increase in excess unabsorbed carbon dioxide could have a catastrophic warming effect, U Thant observed. Melting of the polar ice, changes in the ecology of the seas, even floods on an undreamed of scale are among the potential consequences.

—Modern technology has increased the amount of waste products which become pollutants. In the United States alone, these wastes and pollutants included in a recent year: 7 million automobiles; 20 million tons of paper; 48 billion cans; and 142 million tons of smoke and noxious fumes, most of it from automotive engines, power plants and factories.

—All coastal nations use the sea for disposal of waste: million of gallons of raw sewage, millions of tons of garbage dumped from barges, uncertain amounts of low-level radioactive wastes disposed of through pipelines or in sealed containers. Water used to cool power plant turbines returns to rivers, adding heat pollution.

—Industries often create serious problems through pollution of air and water, damage to agricultural lands, and destruction of scenery. Many rivers and lakes in industrialized areas, including international waterways, are polluted by chemicals and human waste. Fresh-water fish in some regions, even tuna and swordfish from the deep seas, have been declared unfit to eat because of dangerously high levels of mercury.

—The spread of the urban-industrial network with its associated transport facilities consumes space at a high rate. In addition, erosion and salinization have taken a toll of an estimated 500 million hectares of arable land, and two thirds of the world's forest area has been lost to production.

—Some 150 species of birds and animals have become extinct because of human activities, and about 1,000 species of wild animals are now considered rare or endangered.

—With the accelerating growth of the world's population and rapid urbanization, more of the world's inhabitants live in overcrowded conditions. Wretched slums become the environment of people who once lived in greater dignity and better health on rural lands. In the developing nations, the urban population will have increased twentyfold in only 80 years between 1920 and 2000. As urban planning lags behind urban sprawl, mental distress arises from air and water pollution, inadequate transportation, congestion and noise. A number of social problems appear to be linked with overcrowding and overloading of public services: juvenile delinquency and other crime, mental breakdowns, psychosomatic effects, suicides and drug addiction.

—Some chemicals aiding agricultural development and health protection have adverse side-effects recognized long after they have been in use. Pest-killing agents save crops and prevent disease, but may harm plants, wildlife,

fish and the marine environment, which in turn plays a role in maintaining atmospheric oxygen. DDT is a controversial example. An estimated billion pounds of DDT have been dumped into the environment, and another 100 million pounds are added each year, although its use is now restricted in some countries.

—Large-scale construction of dams, reservoirs, canals, power stations and other installations risk undesired effects including siltation, loss of delta lands, salinization, spread of water-borne diseases and displacement of people.

Referring to these multiple hazards, U Thant observed: "To produce at any cost, without due consideration of effects on the environment, can no longer be the central preoccupation of man."

Earlier World Action

Today the world is aware of the need for global defence of the environment as a whole. Separate aspects of the problem, however, have concerned the United Nations and the specialized agencies for many years. The wide variety of United Nations economic and social efforts has included activities relating directly or indirectly to the environment: housing and community development, resource surveys, population studies and family-planning services, projects ranging from the Lower Mekong River Development Project to training and research programmes which may help developing countries avoid mistakes made by the industrialized nations.

Pollution of the seas was one of the earliest environmental problems considered to warrant international action. An international Convention limiting the discharge of oil from ships was signed in 1954. Codification of the law of the sea, including questions of conservation and pollution, was a major project of the International Law Commission. The Commission began this work in 1949, and was assisted by a United Nations-organized international technical conference on conservation of the living resources of the seas in Rome in 1955. In 1958, the resulting draft Conventions were approved at the First United Nations Conference on the Law of the Sea in Geneva. Of the four Conventions approved, three contain provisions on environmental protection:

The Convention on the High Seas which came into force in 1962, requires States to draw up regulations to prevent pollution of the seas by discharge of oil from ships or pipelines, dumping of radioactive waste, or undersea exploitation operations.

The Convention on Fishing and Conservation of the Living Resources of the High Seas, which came into force in 1966, stresses the need for international co-operation to prevent the danger of over-fishing, and lays down rules under which conservation measures of one nation may apply to other countries. It establishes a procedure for the settlement of disputes by a special commission whose decisions are binding.

The Convention on the Continental Shelf, which came into force in 1964, stipulates that "the exploration of the continental shelf and the exploitation of its natural resources must not result in any unjustifiable interference with navigation, fishing or the conservation of the living resources of the sea...."It

requires coastal States operating off-shore installations such as oil wells to take "all appropriate measures for the protection of the living resources of the sea from harmful agents" in safety zones around such installations.

The United Nations Scientific Committee on the Effects of Atomic Radiation, set up by the Assembly in 1955, has given the world periodic reports on radioactivity levels in air, soil and bodies of water, effects on plant and animal life, the hazards of fallout and the threat to humanity in present and future generations. Its latest studies concern chromosome aberrations in human cells, effects of radiation on the nervous system, genetic effects and risks of malignancies.

Ever since the United Nations Conference on New Sources of Energy, held in Rome in 1961, the potential uses of such unconventional sources as the sun, wind, tides, underground steam and hot water have been under study. These "fuels" may eventually play a role in limiting air pollution. United Nations conferences on peaceful uses of atomic energy have dealt with such matters as disposal of radioactive wastes, use of nuclear energy in desalinization, and controls of radiation levels. Social problems of development and urbanization were discussed at the United Nations Conference on the Application of Science and Technology for the Benefit of Less Developed Areas in Geneva in 1963. A European Conference on Water Pollution was sponsored by the Economic Commission for Europe in 1961.

World population conferences sponsored by the Organization have examined the population boom in detail. At the time of the first Population Conference in Rome in 1954, it was anticipated that the earth's population, then about 2,600 million, would reach 3,500 million by 1980. In fact, this number was reached before 1970 and the prediction for 1980 went up to nearly 4,500 million.

Stockholm: An Action Conference

In the late 1960s the cluster of physical and social effects wrought by technology, industrialization and population pressures began to be discussed in the United Nations as "problems of the human environment". At the Assembly's twenty-second session in 1967, this over-all concept emerged in the debate on a report by the United Nations Scientific Advisory Committee, which had suggested that conferences might usefully be held on such topics as the impact of new technologies on human relations and on society.

The proposal for a Conference on the Human Environment was the next step. It was made by Sweden at the spring 1968 session of the Economic and Social Council. After the Council endorsed the idea, the Assembly approved it in resolution 2398 (XXIII) of 3 December 1968, sponsored by 55 nations. In this resolution, the Assembly said the Conference should focus the attention of Governments and public opinion on "the importance and urgency of this question" and identify those aspects that could best be solved through international co-operation and agreement.

By 1970, however, it was clear that the world was already paying attention to the problem. In Government councils, in the Press, in schools and universities, threats to the environment had become a major topic of discussion

in many countries. A dramatic instance of the extent of public concern in an industrially advanced country was the nation-wide "Earth Day" observance in the United States, on 22 April 1970.) For this reason it was decided that the Conference should be "action-oriented" rather than be limited to restating the well-known problems. The Assembly declared that the Conference should not only encourage action but provide the guide-lines; it stressed that developing countries should be enabled to forestall the occurrence of such problems. Another call for action was voiced in the International Development Strategy for the Second United Nations Development Decade, adopted by the Assembly at its 1970 session. The Strategy includes the statement that Governments "will intensify national and international efforts to arrest the deterioration of the human environment and to take measures towards its improvement, and to promote activities that will help to maintain the ecological balance on which human survival depends".

Particular emphasis has been placed on the link between environmental control and economic and social development, and on the fact that while many technological questions remain to be solved, problems of the human environment are increasingly of socio-economic nature. The Assembly has recommended that economic and social aspects of the problem be given attention in planning for the 1972 Stockholm Conference. It asked its 27-member Preparatory Committee set up to plan the Conference to consider the financing of possible action "with a view to ensuring that additional resources are provided to developing countries in the context of the protection of the environment".

Preparations for the Conference were well under way by the end of 1970 when Maurice F. Strong, President of the Canadian International Development Agency, was appointed by U Thant as Secretary-General of the Conference.

In the view of Mr. Strong, the question of managing the global environment in the over-all interests of mankind "is the most intrinsically international of all the great issues which have confronted, or are likely to confront, the human race".

The Conference agenda covers planning and management of human settlements for environmental quality; environmental aspects of natural resource management; control of pollutants and nuisances of broad international significance; international organizational implications of action proposals; development and environment, and the educational, informational, social and cultural aspects of environmental issues. In regard to the latter subjects, a Secretariat report observed that "many of the visible evidences of the environmental degradation are symptoms of much deeper ailments and imbalances which affect the economic and social relationships between men and society, and particularly those which underlie the relationships between the wealthier industrialized countries and the developing nations of the world".

The Preparatory Committee recommended setting up five intergovernmental groups and initiated other activities to lay the groundwork for the Conference. The aims of the groups are: to draft a declaration on the human environment, pledging all countries to preserve the global habitat; to formulate an integrated plan for controlling sea pollution; to review methods of monitoring environmental variables and setting limits for the release of pollutants; and to plan action for preservation of soil and genetic resources. The possible establishment of a World Heritage Foundation is also to be con-

sidered by a working group. Such a Foundation would seek to prevent the destruction of certain areas of natural, cultural or historical significance. Other preparatory work will aid the conclusion of conventions—to be signed at the Conference or later—on such matters as ocean dumping, conservation of wetlands, conservation of islands for science, and regulation of import and export of threatened animal and plant species.

In addition, the Conference Secretary-General has commissioned "A Report on the State of the Environment" to provide the conceptual framework for the Conference. It will draw on a cross-section of the world's scientific community for a comprehensive survey of the present state of knowledge and opinion on the relationship between man and his environment. The Report will indicate the gaps in this knowledge and the priority issues for consideration by Governments. To be published in early 1972, the Report is being drafted by Lady Barbara Ward Jackson and will be reviewed by an international committee of leaders in the natural and social sciences headed by Dr. René Dubos, the distinguished biologist.

While the Conference itself may complete action on some specific problems on which international agreement is reached, most of the work in Stockholm will centre on recommendations to Governments and other bodies—comprising an "action plan" for measures to be taken at all levels in the coming years.

Plans and Proposals

"New economic thinking, new legal instruments, new administrative measures and new governmental priorities"—the need for all of these was stressed by the Secretary-General in his opening address to the Preparatory Committee, and was generally recognized by the Committee members.

What kinds of action might be taken? A number of measures have been suggested by the Secretary-General, the Preparatory Committee, the specialized agencies and other bodies, and various Member States. Some of the suggested avenues are:

—New international conventions, treaties or agreements;

—Systematic data collection and monitoring of pollution levels;

—Exchange of information among countries;

—Study of the effect of environmental legislation on supply and demand of national resources and on development opportunities within developing countries;

—Setting of international standards or limits for chemical, physical and biological contaminants and other quantifiable injurious factors;

—Promotion of scientific research to develop environment-saving alternatives, such as plant derivatives and biological methods to replace persistent toxic chemicals for controlling pests;

—Formulation of national environmental policies and plans, to ensure optimum land use and achievement of such goals as control of urban sprawl, rational management of resources, and expanded low-cost housing.

"Pious hopes, belated promises and tardy efforts at self-discipline", U Thant declared, will not be enough to stop the abuse of the earth and its resources.

If effective measures are to be taken in time, something more is needed—a "global authority" closely associated with the United Nations. Such an authority, he said, would embark on the delicate process of reaching compromises among Governments and interests on matters affecting the environment. It should be able to police and enforce its decisions if necessary, he added. The Secretary-General asked whether the nations of the world had the courage and vision to support such an environmental authority, thus departing from "the hitherto sacred paths of national sovereignty".

The importance of systematic monitoring and research involving global phenomena, such as air and water pollution and the interactions between oceans and atmosphere, has been emphasized in various United Nations bodies. During the past year, two of the specialized agencies—the World Health Organization (WHO) and the World Meteorological Organization (WMO)—have launched atmospheric pollution monitoring networks with stations in a number of countries. While the WMO network detects background pollution at sites in 11 countries where clean air normally would be expected, WHO monitors urban areas with higher pollution levels—concentrating its studies on such pollutants as sulphur dioxide and dust particles, to determine levels of pollution which endanger human health. In addition, WMO and the International Atomic Energy Agency (IAEA) have been seeking answers to questions about the atmosphere and oceans through isotope analysis of precipitation samples collected by more than 100 weather stations in 67 countries.

A long-term international scientific, technological and educational programme on "Man and the Biosphere" was among the measures recommended by the Intergovernmental Conference on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere held in Paris in 1968. The Biosphere Conference—organized by the United Nations Educational, Scientific and Cultural Organization (UNESCO)—declared that before new chemicals or conditions are introduced, measurements should be made to establish possible adverse consequences and control measures should be applied. The Conference called for preservation of representative samples of all significant ecosystems, to save "the rich genetic resources that have evolved over millions of years and are now being irretrievably lost as a result of human actions". Introduction or extension of environmental education at all school and university levels was proposed. These recommendations were endorsed by UNESCO's General Conference. The "Man and the Biosphere" programme, approved by the General Conference in 1970, has a four-fold purpose: study of the structure and functioning of the biosphere; systematic observation of changes caused by man; study of the effects of these changes on the human species, and education and information regarding these problems. Research themes range from mapping the world's vegetation to probing man's long-term influence on the global heat balance.

An international register to keep track of all releases of radioactive wastes into the seas was called for by the Inter-Agency Group of Experts on the Scientific Aspects of Marine Pollution. An IAEA expert panel has endorsed this proposal.

Suggested methods for dealing with the world's water, energy and other resource requirements are contained in various United Nations reports. The total stock of water on earth is fixed; with the world's population increasing

at the rate of about 200,000 every day, the rising demand for water will create "serious long-term problems", according to a Secretariat report submitted to the newly-formed United Nations Committee on Natural Resources. The report calls attention to the need for systematic methods of recirculating water –possibly through development of vast water "grids" which would take in water where it was available and distribute it throughout the grid. The possibility of declaring 1975 International Water Development Year to focus attention on the problem was suggested.

Another report to the Natural Resources Committee dealt with the enormous, largely untapped potential energy sources–geothermal, tidal, hydroelectric–which would reduce pollution while aiding development. Use of these energy resources deserves study at the international level, the Secretary-General stated. In several countries, United Nations expert teams are examining possible geothermal energy development. Looking into the future, the same report foresees intercontinental power grids able to transmit electricity not only within but between continents, allowing better utilization of capacity. Tidal power stations could reduce extreme tidal movements and open up new ports and navigation routes, creating large bodies of water for recreational use. Satellite stations in space, equipped for photo-electric solar power conversion, might transmit thousands of megawatts to earth on microwave beams.

A report on mineral resources suggests that, from the environmental point of view, processing is often more advisable in areas where minerals are mined than in areas of heavy industrial concentration. Quantification of the pollution factor in monetary terms is proposed in calculating costs of mining operations, power stations and other facilities; this approach would replace "conventional economic analysis" which disregards the social or external costs resulting from environmental damage or pollution.

The above proposals represent only a sampling of the varied ideas put forth within and outside the United Nations family of organizations. The youth of the world too have shown great interest in environmental problems. The International Youth Conference on the Human Environment held in August 1971 is one of the ways in which youth can participate in the preparative processes for the Conference on Human Environment. The conference, held at Hamilton, Ontario, was sponsored by the International Union for the Conservation of Nature and Natural Resources, UNESCO, International Youth Federation for Environmental Studies and Conservation, the Environic Foundation International and the UN Conference on the Human Environment. The report of the conference will be an important input to the preparatory process for the Conference on Human Environment itself.

A number of countries have enacted new legislation in pollution control, but at the international level conventions and agreements are not numerous. There is much room for progress in this field, according to U Thant. Probably the most important "environment" agreement was in the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, which followed world-wide alarm over contamination from radioactive fallout and repeated appeals by the Assembly for an end to such tests. A related instrument was the 1959 Antarctic Treaty, which bans not only all nuclear explosions in that area but all disposal of radioactive waste material, and pledges signatories to seek the preservation of Antarctica's living resources.

By the fall of 1971 the preparatory work for the Conference on Human Environment had already reached an advanced stage. Particular attention had been paid to "development and environment", a substantive agenda item proposed at the second session of the Preparatory Committee as part of the Secretariat's work in assuring the participation of developing countries. A panel of 29 experts in development and environment met at Founex, Switzerland, and their report was to be a basic document for four regional seminars on development and environment. These were held in the UN Regional Economic Commissions and the United Nations Economic and Social Office in Beirut, and were organized in cooperation with the United Nations Conference on the Human Environment.

These meetings were held in August and September in Bangkok, Addis Ababa, Mexico City, and Beirut. The world community of scientists has also contributed to the preparatory processes through the International Council of Scientific Unions (ICSU) and the International Union for the Conservation of Nature (IUCN). The Scientific Committee on Problems of the Environment (SCOPE) convened a special working party of scientists from developing countries in Canberra in August.

Current United Nations Activities

Many United Nations bodies and specialized agencies are involved in the campaign to improve the environment, and activities in this field have been increasing in recent years. The following section indicates the scope of work under way in the United Nations system; it is not a comprehensive summary.

UNITED NATIONS The United Nations Secretariat divisions carry out many projects and services concerned with fields such as resources and transport; housing, building and planning; social development; population; public administration; and science and technology. The Human Environment Conference secretariat draws on the experience of all of these units, whose activities include advisory services, seminars, research projects, and meetings of experts in many of the subject areas associated with the environment.

The Centre for Housing, Building and Planning, for example, collects and evaluates information on all aspects of man's "built environment", and its projects include formulation of standards for urban and regional planning. In 1970 it co-sponsored seminars on the impact of urbanization on man's environment and on improvement of squatter settlements. The concerns of the Resources and Transport Division regarding water, energy and minerals have already been mentioned. In the administrative field, studies are under way on regulatory measures, such as taxes and special charges, to make it costly for firms to cause ecological damage. Space specialists are examining the role of earth satellites in the study of changes in the global environment.

The United Nations Advisory Committee on the Application of Science and Technology to Development has prepared a report designed to provide developing countries with guide-lines for rational utilization of their resources. Regional economic commissions have undertaken environmental projects in

air pollution, side-effects of power plants, and water resources development. The Economic Commission for Europe, in particular, has been concerned with industrial pollution for many years; desulphurization of fuels and prevention of water pollution by poisonous chemicals are among the objectives of the Commission's current work.

The United Nations Industrial Development Organization provides technical assistance in analysis of environmental aspects of industrialization. Its field advisers help developing countries in determining techniques, standards and control measures to solve problems of industrial effluents and waste disposal. Suggestions for action to prevent marine pollution were made in a recent report by the United Nations Institute for Training and Research, which also is analysing methods of bringing about compliance with pollution control.

A number of United Nations Development Programme (UNDP) projects concern natural resources and the environment. Typical of the UNDP-assisted projects in many developing countries are: establishment of an institute on occupational health and air pollution; research on ecological changes resulting from man-made lakes; urban planning, and assistance in watershed management and soil conservation. One example concerns the new Aswan High Dam in the United Arab Republic; while harnessing the power of the Nile, the dam holds back silt which formerly spread over the delta, so that the land's resistance to erosion has been reduced. With UNDP aid and UNESCO as the executing agency in the project, the United Arab Republic is planning coastal protection works and development of the delta's land and fresh-water lakes.

UNDP also administers the United Nations Fund for Population Activities, set up with voluntary contributions to assist requesting countries in population programmes. The United Nations Office of Technical Co-operation is the executing agency for many of the projects. By the end of 1970 arrangements had been made for 120 Population Fund projects to help countries obtain, for example, family-planning advisers and contraceptive supplies.

In view of the multi-disciplinary character of environmental matters, various United Nations bodies and agencies often combine their special know-how in joint activities. The fight against marine pollution is an example in which a number of United Nations bodies and agencies are engaged in complementary work. The growing dependence of mankind upon the seas—as a source of protein, among other reasons—has inspired a global approach to ocean activities. Research has been stimulated by such programmes as the World Weather Watch, the International Geophysical Year, the International Biological Programme, the International Hydrological Decade, and the International Decade of Ocean Exploration, as well as the work of bodies such as UNESCO's International Oceanographic Commission. FAO's Conference on Marine Pollution, held in Rome in December 1970, brought together 400 experts who discussed ways of reducing biological effects of pollution on marine life; FAO-sponsored Conventions signed by countries with large fishing operations are designed to ensure conservation of certain species of fish. IMCO has decided to convene a world conference to prepare an international agreement restraining contamination of the sea, land and air by ships or other equipment operating in the marine environment. A new Joint Group of Experts on the Scientific Aspects of Marine Pollution is aiding co-ordination of work in this field carried out by IMCO, FAO, UNESCO, WHO, WMO and IAEA.

A new United Nations body—the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction—is also interested in measures to prevent marine pollution. After considering a report of this Committee at its 1970 session, the General Assembly decided to convene another Conference on the Law of the Sea in 1973 to deal with a broad range of issues, including conservation of the living resources of the seas, preservation of the marine environment and prevention of pollution. The assembly had declared in 1968 that it was "mindful of the threat to the marine environment" which might result from undersea exploration and exploitation, and welcomed adoption by States of "appropriate safeguards against the dangers of pollution and other hazards" of such activities. On several occasions the Assembly called for perserving the sea-bed environment from uses which might be detrimental to the common interests of mankind. It has asked the Secretary-General to review harmful chemical substances, radioactive materials and other noxious agents and waste which may dangerously affect man's health and his economic and cultural activities in the marine environment, to review existing national and international activities in this area, and to seek Member's views on the desirability of a new treaty or treaties on the subject. Most of the Governments which have replied favour such treaties.

UNESCO THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION has carried out environmental studies since its inception, and a separate ecology and conservation section was set up in 1961. In addition to the "Man and the Biosphere" programme, UNESCO activities include arid zone and humid tropics research and the co-operative ocean research, including expeditions, organized by the International Oceanographic Commission. The Commission plans an extensive series of research projects on ocean-atmosphere interactions and marine life. The International Hydrological Decade Programme, launched in 1965, is aimed at increasing knowledge of the world's water resources and the vital water cycle on which all life depends, including scientific aspects of water pollution. One new programme calls for development of an Integrated Global Ocean Station System for monitoring the ocean environment. UNESCO assists Governments in taking conservation measures, and in 1949 it sponsored creation of the International Union for the Conservation of Nature.

IMCO THE INTER-GOVERNMENTAL MARITIME CONSULTATIVE ORGANIZATION has a direct responsibility for placing restraints on contamination of the sea by ships and other equipment. IMCO is the depository of the International Convention for the Prevention of Pollution of the Sea by Oil, which was adopted in 1954 and came into force in 1958. This Convention banned the discharge of oil or oily mixtures by tankers within specified zones. In 1969 the IMCO Assembly approved amendments to the Convention, aimed at bringing about a total prohibition of oil discharge and dumping. The Convention, however, does not cover tanker accidents which spill thousands of gallons of oil into the sea—such as the *Torrey Canyon* disaster of 1967, which caused millions of dollars of damage along the English and French coasts.

As a direct result of that accident, IMCO convened a conference in Brussels, in 1969, at which two new Conventions were adopted and opened for signa-

ture. The first—the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution—deals with the right of a coastal State to take measures to protect its interests in cases of dangerous pollution from a casualty on the high seas. The second—the International Convention on Civil Liability for Oil Pollution Damage—aims at ensuring adequate compensation to victims of oil pollution damage resulting from tanker accidents. It places liability on the owner of the ship involved. In addition to planning new anti-pollution conventions, IMCO is studying methods of tanker construction to limit the escape of oil in accidents, and investigating chemical and mechanical agents for absorbing spilled oil. It is preparing a code covering the design, construction and equipment of ships carrying dangerous cargoes in bulk.

FAO Many activities of the FOOD AND AGRICULTURE ORGANIZATION have a direct bearing on conservation of soil, plants, and animal and marine life. Under the International Plant Protection Convention, a network of regional plant protection organizations has been set up to strengthen co-operation in controlling destructive pests and diseases. A computerized data system is being developed to match fertilizer and herbicide application to soil properties, for rational use and prevention of pollution. FAO is promoting the establishment of national and regional genetic conservation centres or "gene banks" to maintain seed and plant collections under optimum conditions. Joint FAO/IAEA and FAO/WHO expert groups have been studying the accumulation of pesticides or radioactive fallout which may render foods unsuitable for consumption. Misuse of the environment has been a recurring concern at FAO meetings.

WHO THE WORLD HEALTH ORGANIZATION has set up international reference centres to assist Governments in identifying, measuring and evaluating air and water pollutants, and to aid in solving waste disposal problems through such methods as simple processes for reduction of solid wastes. The organization's air pollution monitoring work was cited above. WHO is also concerned about diseases carried by mosquitoes, rats, snails and other vectors which often accompany urbanization. It studies and defines standards for food additives and food hygiene, as well as for water quality, and assists countries in improving environmental sanitation. Work in progress includes formulation of a long-term programme for environmental health, including establishment of an environmental health code.

WMO THE WORLD METEOROLOGICAL ORGANIZATION's World Weather Watch, initiated by the 1963 World Meteorological Congress, is a far-reaching programme for development of a world weather service integrating national and international activities, including the use of observation satellites. A programme on the interaction of man and his environment covers meteorological aspects of agriculture, aeronautics, oceanography, water resources and atmospheric pollution. Its recently established air pollution network eventually will comprise up to 150 stations. WMO also is setting up several "baseline air pollution stations", far from population centres, to document long-term changes in atmospheric parameters of particular significance to weather and climate. The influence of human activity on changes in climate is among the subjects of WMO studies.

IAEA THE INTERNATIONAL ATOMIC ENERGY AGENCY has a continuing programme to combat radioactive pollution caused by nuclear power plants and other peaceful uses of atomic energy. It carries out radioactivity analyses of air samples and has issued recommendations on radioactive water pollution and disposal problems. Standards, regulations, codes and manuals on nuclear safety and environmental protection are promulgated by IAEA. Work in 1970 included a symposium on use of nuclear techniques in measurement and control of environmental pollution. Environmental matters were on the agenda of the Fourth International Conference on the Peaceful Uses of Atomic Energy, held in Geneva in September 1971. A programme which may have wide-ranging results concerns the use of radio-isotope tracer techniques to study the fate of pesticide residues; in this effort IAEA is collaborating with FAO, WHO and the International Union of Pure and Applied Chemistry.

ILO THE INTERNATIONAL LABOUR ORGANISATION—which is seeking to protect workers against pollution in the working environment—recently has undertaken projects on atmospheric control in mining operations. Its model code of safety regulations for industrial establishments deals with air pollution control, and a guide to atmospheric control in foundries has been prepared. ILO is examining the possibility of conventions or recommendations on atmospheric pollution control in the working environment.

ICAO THE INTERNATIONAL CIVIL AVIATION ORGANISATION—which has been studying "Sonic boom" from supersonic aircraft and airport noise—has made progress in establishing standard procedures for measuring aircraft noise. A special ICAO committee is exploring technical means of modifying aircraft to comply with noise certification standards.

The past, present and planned United Nations activities to preserve life on earth have demonstrated that all nations have a common interest in defending man's environment—an interest that bridges geographical or ideological divisions. In the past, common property resources such as air, water and open space were considered resources owned by no one; today they tend to be treated more and more as resources owned equally by all—and their uses are increasingly subject to standards and prohibitions by Governments at local, national and international levels.

The Secretary-General of the Conference on the Human Environment, Mr. Strong, has said that the necessary change in ways of thinking will be difficult; Governments will have to adjust their attitudes about national interests to fit the more restrained patterns of international conduct required by the crisis of the human environment. Such changes must come quickly, he said, "if we are to stem the slide into environmental degradation, the abomination of urban rot, the extravagant squandering of resources, and the insidious process of social confusion and personal alienation". If Members of the United Nations find the political will to do so, "they can make of the United Nations Conference on the Human Environment the starting-point of a world mobilization for the future of man".

Only one Earth

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